[0010] U.S. Patent Application Serial No. 09/854,940 entitled "High Temperature Super-Conducting Rotor Coil Support And Coil Support Method", filed May 15, 2001 (atty. dkt. 839-1012);

[0011] U.S. Patent Application Serial No. 09/854,944 entitled "A High Power Density Super-Conducting Electric Machine", filed May 15, 2001 (atty. dkt. 839-1019);

[0012] U.S. Patent Application Serial No. 09/854,943 entitled "Cryogenic Cooling System For Rotor Having A High Temperature Super-Conducting Field Winding", filed May 15, 2001 (atty. dkt. 839-1062);

[0013] U.S. Patent Application Serial No. 09/854,464 entitled "High Temperature Super-Conducting Racetrack Coil", filed May 15, 2001 (atty. dkt. 839-1063); and

[0014] U.S. Patent Application Serial No. 09/855,034 entitled "High Temperature Super Conducting Rotor Power Leads", filed May 15, 2001 (atty. dkt. 839-1064).

IN THE CLAIMS

Please substitute the following amended claim(s) for corresponding claim(s) previously presented. A copy of the amended claim(s) showing current revisions is attached.

Cancel claims 24 to 30 without prejudice in view of the restriction requirement.

1. (Amended) In a synchronous machine a rotor comprising:

a rotor core;

a super-conducting coil mounted on said rotor core and said coil having at least one coil side section extending along a side of the rotor core and radially outward of the side of the rotor core;

a vacuum housing straddling the at least one coil side section, wherein the vacuum housing further comprises a top plate and a pair of opposite sidewalls such that the at least one coil side section is enclosed on three sides by the vacuum housing, and further the sidewalls are in sealing engagement with the side of the rotor core, and

a conductive shield extending over said vacuum housing and coil side sections.

2. (Amended) In a rotor as in claim 1 wherein said vacuum housing is a channel housing extending longitudinally along said side of said rotor core, wherein said side is a planar section of the core and said coil side section and vacuum housing extend radially outward of said planar section.

6. (Amended) In a rotor as in claim 1 further comprising a planar surface extending longitudinally across the rotor core, wherein the at least one of coil side section is adjacent the planar surface and extends radially outward of said planar surface.

8. (Amended) In a rotor as in claim 1 further comprising a plurality of braces buttressing the sidewalls of the vacuum housing and conductive shield.

9. (Amended) A rotor comprising:

a rotor core having an axis;

an end shaft extending axially from an end of said core, wherein said end shaft has a slot adjacent the core end;

a super-conducting rotor coil having at least one coil side parallel to the core axis and at least one coil end transverse to said core axis, wherein said coil end extends through said slot in the end shaft and said coil side extends radially outward of said rotor core;

a vacuum housing over said coil side and seal with said slot to define a vacuum region around said coil, wherein said vacuum housing has a rectangular cross-section and further comprises a top plate and a pair of opposite sidewalls such that the coil side is enclosed on a plurality of sides by the vacuum housing, and further the sidewalls are in sealing engagement with the rotor core.

11. (Amended) A rotor as in claim 9 wherein said vacuum housing is sealed to said rotor core on both sides of said coil side.

12. (Amended) A rotor as in claim 11 wherein each side wall is sealed to a surface of the rotor core along an entire length of the rotor core.

15. (Amended) A rotor as in claim 9 further comprising a plurality of braces buttressing said sidewalls of the vacuum housing and attached to said rotor core.

16. (Amended) A rotor as in claim 15 further comprising an electromagnetic shield around said braces.

17. (Amended) A rotor comprising:

a rotor core having an axis;

a pair of end shafts extending axially from opposite ends of said core, wherein said end shafts each have a slot adjacent the core end;

a super-conducting rotor coil having at least one coil side section parallel to the core axis and adjacent opposite sides of said core, and said coil having coil end sections transverse to said core axis and adjacent the ends of said core, wherein said coil end sections each extend through one of said slots in the end shafts and said coil side section extends radially outward of said rotor core;

a vacuum housing over each said coil side sections and having ends each being sealed to one of slots, wherein said vacuum housing further comprises a top plate and a pair of opposite sidewalls such that the coil side is enclosed on a plurality of sides by the vacuum housing, and further the opposite sidewalls are in sealing engagement with the rotor core, and

a vacuum region around said coil defined by the slot in said pair of end shafts and the vacuum housing over each of said coil side sections.

18. (Amended) A rotor as in claim 17 further comprising a conductive shield over said coil side sections and overlapping with said end shafts, such that the shield is sealed to the end shafts.

20. (Amended) A rotor as in claim 18 wherein said shield is formed partially by a top portion said vacuum housing.